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(54) Labeled package and method of labelling

(57) The present invention relates to a labeled package having an outer surface, comprising a label which is wet glued onto a portion of said outer surface, said package having a substantially polygonal section, the package being characterized in that said label covers at least two adjacent sides of said package. An appropriate process for labeling such a package with such a label is provided as well.

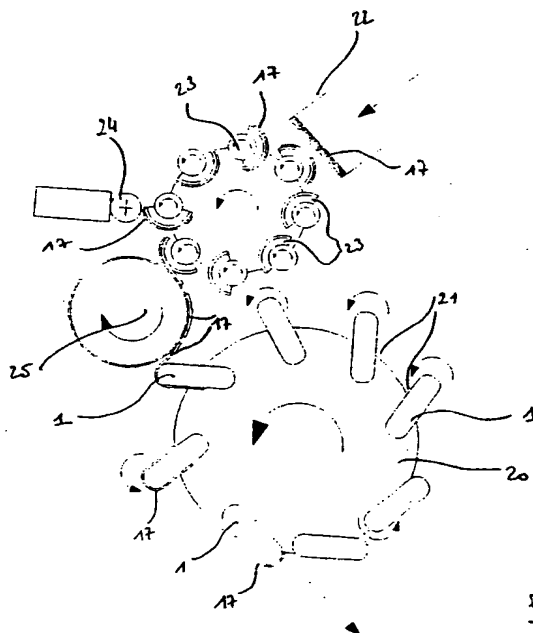


Figure 1

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Description

Field of the invention

[0001] The present invention relates to a package comprising a one-piece wet-glued label, said package having a substantially rectangular section.

Background of the invention

[0002] Plastic bottles for containing a liquid consumer product are representative of the various packages for consumer products to which the present invention can apply; such packages typically comprise, for example, a body of the package that has a substantially rectangular section, and constructed so as to be filled with a pre-determined amount of a product, for example under the form of a liquid, granulates, or a powder. Such packages further comprise a neck that is closed by a removable closure, and optionally a handle.

Such packages are typically covered by at least one label, so as to provide information on the contained product, as well as a support of advertisement. Different processes are known and used in the art to apply labels on such substantially square packages.

Some labels are attached on the surface of the package by using wet glue. Such a process does not allow gluing of a one-piece label onto more than one side at a time, in case the package body has a substantially rectangular section. However, for packages that have a substantially round section, for example bottles, such as those used for packing mineral water or wines, it is possible to apply a one-piece wet-glued label, that covers the whole circumference of the bottle. Such a label is applied by making the bottle rotate all along the application of the label. However, such labels have the disadvantage of covering only small portions of the package since they are theoretically limited to the surface of one side, as a maximum (in fact, a border is generally reserved all around the side that is free of decoration, and thus the labeled surface is even more limited).

Self adhesive labels are used when decoration over an extended surface is needed. Then, it is possible to use several adjacent sides of a package that has a substantially rectangular section, as a support for labeling. The process for applying such self-adhesive labels is well-known in the art.

[0003] In view of the different solutions that exist in the art for labeling packages that have a substantially rectangular section, it is clear that there is still a need for such a package, that comprises a one-piece label, said label being glued over several adjacent sides of the package for an enlarged surface of decoration. Similarly, there is a need for a process for applying such a label onto such a package. Wet glue labeling is a faster and cheaper technique than the ones used for example for wet-gluing one label by side, or for applying self-adhesive labels.

[0004] It is therefore one main object of the present invention to provide a labeled package, wherein the label is a one-piece label that is wet glued onto at least two adjacent sides of the package.

It is another further object of the present invention to provide a process for labeling a package as described above.

Summary of the invention

[0005] A labeled package having an outer surface, comprising a label which is wet glued onto a portion of said outer surface, said package having a substantially polygonal section, the package being characterized in that said label covers at least two adjacent sides of said package. An appropriate process for labeling such a package with such a label is provided as well.

Brief description of the drawings

[0006] The invention will now be explained in detail with reference to the accompanying drawings, in which:

- Figure 1 is a schematic top view of the labeling station according to the present invention.
- Figure 2 is a perspective view of a package showing a label positioned onto at least two adjacent sides, in accordance with the present invention.
- Figure 3A is a schematic top view showing one portion of a labeling station according to the present invention. More particularly, a package is shown which is oriented so that its left to right dimension (i.e., great length) is positioned towards the gripper cylinder.
- Figure 3B is a schematic top view showing one portion of a labeling station according to the present invention. More particularly, a package is shown which is oriented so that its front to back dimension (i.e. small length) is positioned towards the gripper cylinder.

Detailed description of the invention

[0007] As shown in figure 2, a package (1) is provided which comprises a package body (10), and an aperture. The package is made out of any suitable material, such as metal, glass or a thermoplastic material, preferably out of a polyethylene, or a polypropylene. The package is manufactured by any suitable process such as, for example, injection molding, injection blow-molding, blow-molding or thermoforming, in the case of a package made out of a thermoplastic material; or for example a wrap-around process in the case the package is made out of cardboard. The package is intended for containing any type of consumer products such as food or cleaning products or medicine, for example. Preferably, the package contains a cleaning or laundry product, under the form of a detergent composition. While such

a product can be a liquid, granulates, or a powder, it is preferably a liquid. The package according to the present invention can be of any type, such as a can, a tank, a flask, a tub but preferably, the package is a bottle.

[0008] In the preferred embodiment of the present invention, the package comprises a package body (10), a neck (11) that is closed by a closure, and preferably also comprises a handle (16). Any further design shall be applied to the package according to the present invention, such as for example handling grooves to facilitate handling of the package during usage while preventing slippage, or for example recesses (12) in the package body (10) that are located around the portion of said package body (10) onto which a label (17) is to be applied. Such recesses (12) are to prevent early wearing of the surface of the label (17) during the conveying or handling operations, when packages bodies are typically knocked against each other, thus leading to high friction of said surfaces of said labels.

[0009] The package body (10) has a substantially polygonal section, preferably a square section, and most preferably a substantially rectangular section. It comprises at least three, but preferably four sides (13), namely front, back, right and left sides: for clarity purposes and in the case the package's sides do not have the same surface, the front and back sides (facing each other) are defined as the sides with the greatest surfaces, while the left and right sides (facing each other as well) are defined as the sides with the smallest surfaces. In the most preferred embodiment of the present invention, since the section is rectangular, the front to back dimension of the package body (10) is preferably smaller than the left to right dimension, as shown in figure 2, 3A and 3B. Two adjacent sides (13) are joined by an edge (14). While the section of the package is substantially polygonal, the sides (13) of said package preferably comprise a rectilinear longitudinal direction, and a curved radial direction, said radial direction being preferably curved at a radius of below 100 degrees, more preferably below 80 degrees. This curve of the sides is designed so as to facilitate exhausting of the air from the space between the external surface of the package and the internal surface of the label (17). Preferably, two sides (13) are joined by an edge (14) which is not sharp but curved with a radius of at least 5 degrees, more preferably at least 9 degrees.

The package body (10) comprises at least one labeling portion (15) onto which a label (17) is to be applied. Said labeling portion (15) of the package body (10) is preferably constructed as a recessed portion of said package body (10), so as to prevent early wearing of the label during handling and conveying as previously described. Said labeling portion (15) is located over at least two adjacent sides of the package, but in a preferred embodiment of the present invention, it covers the whole circumference of the package.

[0010] In a preferred embodiment of the present

invention, the package (1) is a bottle. Said bottle (1) can have any suitable volume, preferably its volume is more than a quarter liter, more preferably more than half a liter, and most preferably its volume is more than 1 liter.

The bottle (1) preferably comprises a handle (16) which is more preferably molded integrally with bottle body (10). The bottle (1) has a neck (11) which comprises a means for securing a closure thereonto. Said closure can be of any type, for example snapped on via bayonet fittings, or screwed, but it is preferably removable. While any securing means can be adapted to the bottle according to the present invention, said means is preferably a thread that is to be fitted onto a corresponding thread of the removable closure. Alternatively, said means is a system of at least two plugs and/or notches for fitting onto at least two corresponding plugs and/or notches of the removable closure so as to define a bayonet means. Any type of closure shall be adapted onto the neck (11) of the bottle, such as for example a cap comprising a dispensing spout or a dosing means. The closure may also comprise child-deterrent or child-resistant means. It may also be constructed so as to ensure at first use, that the bottle had never been opened before (i.e. tamper-evidence feature). The closure can be made out of any suitable material, such as metal, or a thermoplastic, or a combination of these materials, but is preferably entirely made out of a polyethylene or a polypropylene.

[0011] A label (17) is glued onto the package. Said label (17) is made out of any suitable material such as paper or a thermoplastic, preferably a paper material. It can be coated, printed or varnished as well. In the case the label (17) is made out of paper, and if the package contains aggressive products, such as chlorine-based products for example, the label (17) is preferably coated with a bleach-resistant varnish. Such varnishes are known in the art and typically comprise for example UV-cured varnishes. The label (17) shall have any suitable shape and size, so as to cover at least two adjacent sides of the package body (10). Preferably, said label (17) covers the front, back, and left and/or right sides of the package. The thickness (or weight) of the label (17) can have any suitable value but is preferably comprised within the range of 40 to 200 gr./m², more preferably within the range of 40 to 100 gr./m². Such labels are typically made out of a roll of film, or out of a sheet, which is punched so as to cut the labels at the right shape and size.

[0012] The label (17) is to be positioned in a labeling portion (15) of the package body (10) which is recessed, so as to be protected from early wearing during the conveying operations, as previously explained. In the case the label (17) is made out of a thermoplastic material, said label (17) shall be treated by a Corona-treatment, or the like, so as to eliminate any electrostatic extra-charge at the surface of said label (17), and so as to ensure that no electrostatic interaction will occur between the surface of the package and the label (17)

during the labeling operation, thus ensuring a correct positioning of the label (17) onto the bottle. Such surface treatments are well-known and used in the art of labeling. In a preferred embodiment of the present invention, the package is a bottle with an integrated handle (16), in such case, the label (17) preferably covers the side which is opposite to the side comprising the handle (16).

The label (17) shall be designed such as to evenly adapt to the surface of the package, especially in the portions of said package which comprise recessed portions or protuberances, such as for example a handle (16). Said label (17) is printed, so as to be used as a support of information and advertisement. Any printing technique shall be used, such as for example off-set printing or flexography. The present invention provides increased labeling surface, by providing a positioning of the label onto at least two adjacent sides of the package, while using a gluing technique and label material which are cheap. In a preferred embodiment of the present invention, the label is continuously positioned onto the front side as well as the left and/or right side. In another embodiment of the present invention, the label is applied onto all sides of the container, so as to cover the whole circumference of the package (i.e. for example the bottle).

[0013] The label (17) is applied onto the package body (10) by a wet-gluing process which is further described below. The use of wet glue is known in the art of applying labels onto cylindrical packages, for example wine bottles. One advantage of this technique is that it uses cheap materials, for the glue as well as for the label, and the machinery is also simpler than the one which is used for example for applying self-adhesive labels. Consequently, the overall cost for applying wet glue labels on several adjacent sides of a package according to the present invention, is much cheaper than the known techniques.

[0014] The bottles are conveyed to a labeling station (20), that can be of any suitable construction, but is preferably a rotary labeling station, as shown in figure 1. Said rotary labeling station (20) comprises unitary rotating pockets (21) which have the shape of recesses located along the circumference of said rotary labeling station (20), each recess being suitable for loading one package, for example one bottle. Two conveying lines are connected to the rotary labeling station (20), one of them feeding label-free packages, and the other one for receiving labeled packages which exit from the rotary station (20).

[0015] A stack of labels is contained into a label feeder (22) which is located next to the rotary plate. The labels (17) are removed one by one from said stack of labels, by means of removing means (23) (or "label pallet"). The removing means (23) has a shape for example as shown in figure 1: it comprises a set of unitary rotary label supports (23) which are located on the circumference of a rotating plate. Alternatively and due to the

rotating movement, each of the label supports (23) removes one label (17) from the label feeder (22). The side of the label (17) which comes in contact with the label support (23) is the external side, and so the internal side of the label (17) is positioned outwardly, and so that a predetermined quantity of wet glue is then applied onto said internal surface of said label (17), as shown in figure 1, by contacting said internal surface of said label (17) with a gluing roll (24). Said gluing roll (24) is preferably a rotating cylinder made out of a foam-like material. Said gluing roll (24) is preferably vertically positioned and continuously fed at its top portion with wet glue. The amount of wet glue on the surface of said gluing roll (24) is then dosed by a regulating means, such as for example a scraper (not shown on the figure).

[0016] Once the internal side of one label (17) has come in contact with the gluing roll (24) and is coated with glue, it is then transferred to a so-called gripper cylinder (25) (see figure 1). The gripper cylinder (25) is the means which allows to transfer the glued labels onto the surface of the packages. In order to apply labels as previously defined, and in accordance with the present invention, the transferring means needs to be an adaptive means. As previously explained, the present invention applies to packages which have a substantially polygonal section, and thus the distance between the surface of the gripper cylinder (25) and the labeling portion (15) of the package varies. However, the gripper cylinder (25) must stay at the same distance from the labeling surface (15) of the package, while said package is rotating on the rotating labeling station, so that a label (17) is evenly and correctly positioned onto the surface of a package.

[0017] Several means shall be used to adapt the distance between the gripper cylinder (25) from the labeling portion (15) of the package body (10). For instance a spring shall be used which keeps the gripper cylinder (25) continuously and substantially pressed against the surface of the package, during the labeling operation, and especially during the rotation of the package. A preferred means which allows the gripper cylinder (25) to stay at the same distance from the labeling portion (15) of the rotating package, is a cam system. In this case, the gripper cylinder (25) for example, is rotatably attached to a plate, said plate being mounted into an ellipsoid groove. Said cam system is such that when a package is rotatably positioned with its front to back dimension oriented towards the gripper cylinder (25), as shown in figure 3A, the gripper cylinder (25) is near to the labeling station. Once the package has rotated and its left to right dimension (i.e. increased side to side dimension) is oriented towards the surface of the gripper cylinder (25), as shown in figure 3B, said cylinder translates away from the labeling station (20). In this way, the distance between the surface of the gripper cylinder (25) and the labeling surface (15) of the package stays continuously and substantially the same, and the gripper cylinder (25) is substantially pressed against the

surface of the labeling portion (15) of the package body (10), so that a label (17) can be correctly transferred from the surface of the gripper cylinder (25) onto the surface of the package.

[0018] Finally, once the label (17) has been positioned 5 onto the package, the labeled package is transferred to a wiping station (26) (not shown in figure 1). During the labeling process, some air was forced in the space between the label (17) and the package. This air tends to wrinkle the surface of the label (17), leading to unacceptable appearance of the labeled package, as well as 10 creating weakened zones in the label (17). In order to remove that air, a wiping step is required which uses a wiping means, for example at least one roll of a foam-like material, that presses against the surface of the label (17) so as to force the air out of the space between 15 said label (17) and the package. Said wiping station can be located for example as an integral part of the rotary labeling station (20), or can be positioned as a separate element after said rotary labeling station. 20

[0019] The speed of the labeling machine suitable for applying labels on substantially square packages according to the present invention is more than 100 bottles/minute for 1 liter bottles, preferably more than 160 25 bottles /minute, and most preferably more than 200 bottles/minute.

[0020] For clarity purposes, the directions of the rotating movements of the different elements are shown in figure 1 and 3 by means of arrows. 30

Claims

1. A labeled package (1) having an outer surface, comprising a label (17) which is wet glued onto a portion (15) of said outer surface, said package (1) 35 having a substantially polygonal section, the package being characterized in that said label (17) covers at least two adjacent sides of said package.
2. A labeled package (1) according to claim 1, wherein 40 said package (1) has a substantially rectangular section.
3. A labeled package (1) according to any of the preceding claims, wherein said package (1) is a bottle. 45
4. A labeled package (1) according to any of the preceding claims, wherein said one-piece wet glued label (17) covers the front side, the left and/or right 50 side and the back side of the package.
5. A labeled package according to any of the preceding claims, which is made out of a thermoplastic material. 55
6. A labeled package according to claims 1 to 5, wherein the label is made out of paper.

7. A process for making a labeled package according to any of the preceding claims, which comprises the steps of:

- (i) feeding a rotary labeling station (20) with non-labeled packages, each package (1) being positioned into one unitary rotary pocket (21) of the rotary station,
- (ii) removing one label (17) from a stack of labels by using a removing means (23),
- (iii) making the label (17) contact a gluing roll (24), the surface of said roll being covered with cold wet glue, so as to transfer a predetermined quantity of wet glue onto the surface of said label,
- (iv) applying said one wet glued label onto the surface of one package which is rotateably positioned into one unitary rotary pocket, by means of an adaptive applying means (25),
- (v) exhausting the air which is located in the space defined between the external surface of the package and the internal surface of the label, by using a wiping means,
- (vi) conveying the labeled package out of said rotary labeling station.

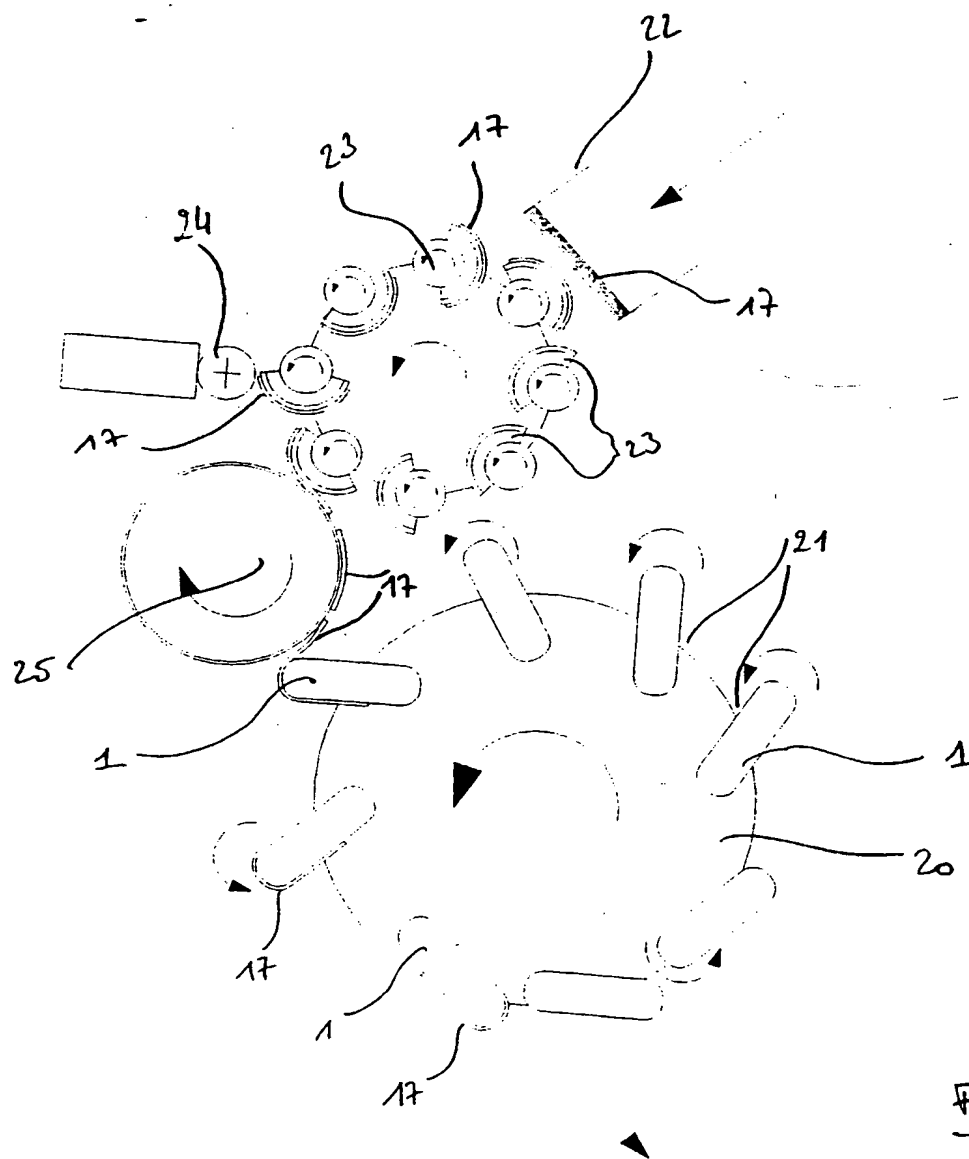


Figure 1

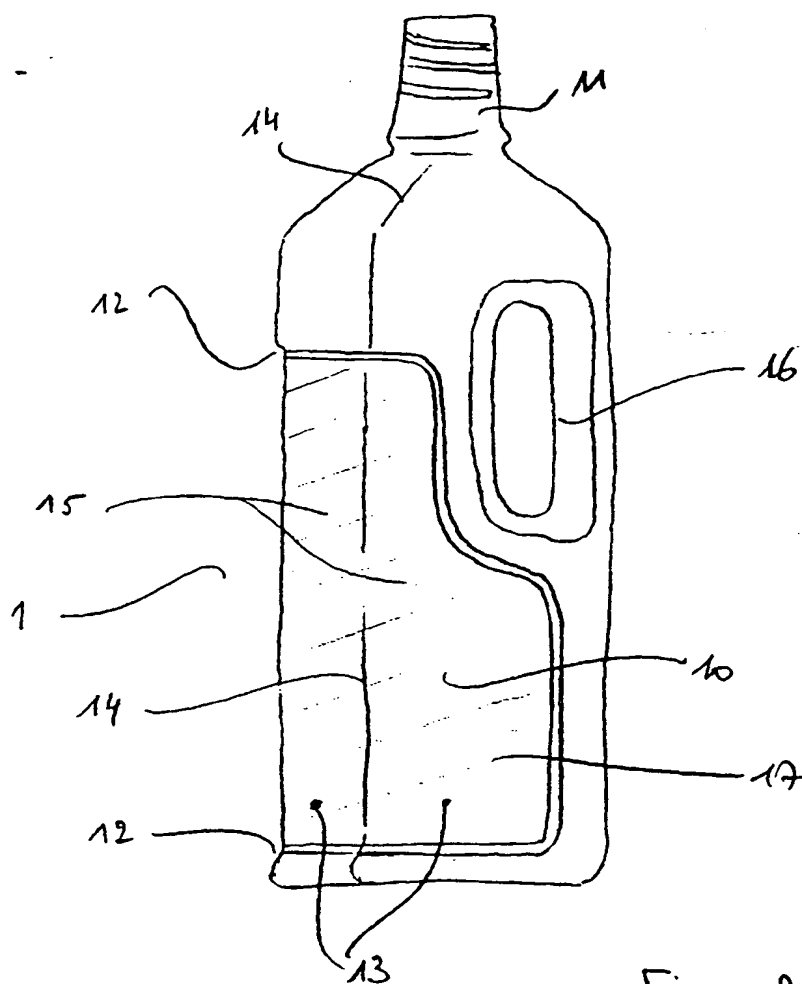
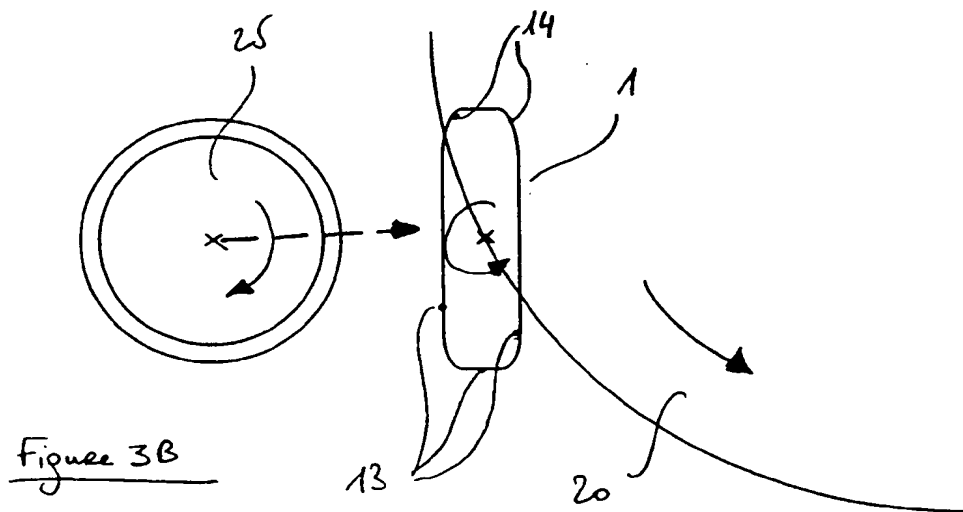
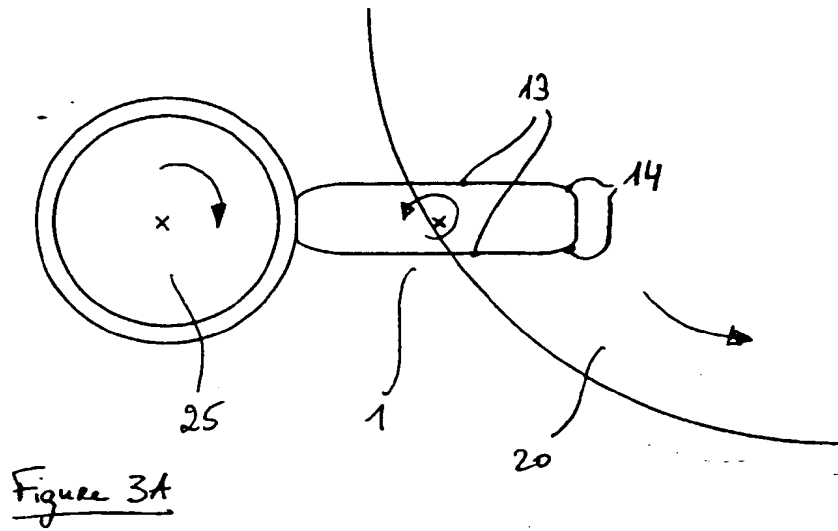


Figure 2



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EUROPEAN SEARCH REPORT

Application Number
EP 98 20 2472

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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 20 November 1998	Examiner Müller, C
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